

Iowa.—1st, 2d, 3d, 14th, 26th.
 Kansas.—2d, 14th, 20th, 26th.
 Kentucky.—22d.
 Louisiana.—8th.
 Maine.—9th, 19th, 22d, 23d, 28th to 31st.
 Maryland.—16th, 18th, 19th, 29th.
 Massachusetts.—17th, 25th, 29th.
 Michigan.—4th, 15th.
 Minnesota.—14th.
 Missouri.—3d, 14th, 15th, 18th, 27th.
 Nebraska.—30th.
 Nevada.—19th, 21st.
 New Hampshire.—1st, 5th, 27th.
 New York.—5th, 16th, 17th, 19th, 20th, 21st, 25th, 26th, 28th, 29th.

North Carolina.—8th, 10th, 24th, 25th, 26th.
 Ohio.—15th, 18th, 20th, 21st, 22d, 27th, 28th.
 Oregon.—22d.
 Pennsylvania.—16th, 17th, 19th, 27th, 28th.
 South Carolina.—15th, 16th, 24th.
 Tennessee.—8th, 17th, 23d, 24th.
 Texas.—3d, 11th to 14th, 17th, 19th.
 Vermont.—21st, 28th.
 Virginia.—8th, 16th, 18th, 24th, 25th, 26th.
 Washington Territory.—10th, 13th, 14th, 23d, 31st.
 Wisconsin.—3d, 4th, 25th.

The following reports indicate the severity of the sleet storm that prevailed in Massachusetts, New Hampshire, and Maine from the 27th to 29th:

Worcester, Worcester county, Massachusetts: the ice storm which began on the night of the 27th has had no equal during the past half century. The shade trees on many of the streets were locked together and looked like caves with brilliant stalactites, while the branches rustled and swayed like heavily beaded lace.

Princeton, Worcester county, Massachusetts: the most remarkable ice storm for the past thirty years occurred from the 28th to 31st; ice formed on trees and exposed surfaces from two to three inches thick; great damage was done to trees, telegraph wires, etc. The evergreen, spruce, and balsam trees were completely encased in ice, but were not broken as badly as the deciduous trees.

Portsmouth, Rockingham county, New Hampshire: the damage caused by the rain of the 28th was unparalleled in the history of this place; ice gathered in masses on trees and shrubbery of every description; hundreds of shade trees were completely ruined.

Portland, Maine: great damage was done to trees and telegraph lines throughout this section of the state during the rain of the 28-29th, which froze, covering everything with a thick coat of ice; several persons were seriously injured by the falling branches.

Gorham, Cumberland county, Maine: great damage was done to the beautiful elms for which this village is noted by the heavy coating of ice from the storm of the 28-29th.

Castine, Hancock county, Maine: the ice on trees was from one-half to two inches thick on the 28-29th; very few trees remained whole, and the streets and sidewalks in places were completely blocked by the falling limbs.

Saco, York county, Maine: a cold rain occurred on the 27-28th, which froze, covering everything with a thick coat of ice; the damage to timber and orchards throughout this country is estimated at several thousand dollars.

Bar Harbor, Hancock county, Maine: a very destructive ice storm occurred on the 28-29th, the rain, which froze as fast as it fell, coated everything exposed with ice, doing great damage to fruit and shade trees.

Richmond, Sagadahoc county, Maine: much damage was done to fruit and shade trees and telegraph lines in this vicinity by the ice storm of the 28-29th.

South Deer Isle, Hancock county, Maine: such a scene of destruction as occurred during the storm of the 28-29th has not been seen for years; the damage to fruit trees will amount to more than half their value.

Table of excessive and greatest monthly precipitation for January, 1886.

Station.	Specially heavy.	Largest monthly.	Station.	Specially heavy.	Largest monthly.
Date.	Amt.	Amount.	Date.	Amt.	Amount.
Alabama.			Alabama—Cont'd.		
Marion	2, 3	6.50	Valley Head	2, 3	3.88
Do	15	2.00	Mount Vernon	3	3.80
Greensborough	2, 3	6.77	Gadsden	1, 2	4.00
Mount View	2, 3	2.75	Birmingham	3	3.07
Do	8	2.50	Carrollton	15	2.20
Do	18	3.00	Centre	2, 3	4.38
Tuscaloosa	2, 3	5.00	Union Springs	3	2.75
Prattville	3	3.60	Montgomery	2, 3	2.41
Auburn	3	2.38	Mobile	3	2.15
Do	23	2.00	Newton	2, 3	2.50
Eufaula	2, 3	4.06	Decatur	2	2.00

Table of excessive and greatest monthly precipitation for January—Cont'd.

Station.	Specially heavy.	Largest monthly.	Station.	Specially heavy.	Largest monthly.
Date.	Amt.	Amount.	Date.	Amt.	Amount.
Arizona.			Massachusetts—Cont'd.		
Prescott	19	3.90	Newburyport		7.76
British Columbia.			Cambridge		7.35
New Westminster	23, 24	3.11	Chestnut Hill		7.17
California.			Boston	28, 29	2.05
Emigrant Gap		18.31	South Hingham		6.90
Cisco		14.55	Lowell		6.76
Summit		13.90	New Bedford		6.74
Colfax		12.17	Leicester		6.62
San Rafael	21, 22	3.00	Mythic Station		6.60
Do	24	2.05	Framingham		6.54
Murieta	16 to 19	7.46	Lake Cochituate		6.53
Redding		10.30	Worcester		6.52
Delta		9.95	Fitchburg		6.46
Towles		9.80	Concord		6.45
Fall Brook	18, 19	2.87	Cambridge		6.41
Calistoga		9.39	Long Plain		6.20
Hydesville	21, 22	3.90	Westvale		6.13
Dunnigan		8.37	Taunton		6.07
Boca		8.35	Lawrence		6.03
Suisun		8.13	Mississippi.		
Oakland		8.12	Vicksburg	1, 2	3.26
Napa		8.09	New Brunswick.		
Elmira		8.01	Parker's Ridge		10.60
Sacramento	19, 20	2.73	Saint John		8.49
Do	23	2.50	New Hampshire.		
Los Angeles	18, 19, 20	5.27	Bristol		6.61
Chahuenga Valley	18, 19, 20	5.85	Mt. Washington	4, 5	2.17
Aptos		7.61	New Jersey.		
Santa Cruz		7.60	Dover	3, 4, 5	3.15
San Francisco	23	2.35	Paterson	4	2.14
Angel Island	23	2.74	New York.		
Truckee		7.08	West Point		6.80
Alcatraz Island	23	2.60	Mountainville	3, 4, 5	3.14
Presidio of S. F.	23	2.10	North Volney	4, 5	2.50
San Fernando		6.70	White Plains	4, 5	2.40
Galt		6.40	North Carolina.		
Poway		6.34	Hatteras		7.17
Sacramento		6.26	Lenoir	2, 3, 4	3.30
South Vallejo		6.25	Do	8	2.00
San Mateo		6.20	Kitty Hawk	4, 5	2.41
Niles		6.17	Lincolnton	3, 4	3.05
Petaluma		6.09	Statesville	3, 4	3.87
Gilroy		6.09	Charlotte	3, 4	2.57
Pajaro		6.05	Ohio.		
Benicia Barracks	23, 24	2.52	Clyde	3	2.20
Connecticut.			Oregon.		
London	4, 5	2.31	Bandon	19 to 24	7.61
Collinsville		6.54	Do	30, 31	2.83
Voluntown	29, 30	2.50	Astoria	22, 23	3.36
Norfolk		6.19	Albany		13.24
Bethel	5	2.40	Eola	22	2.21
Southington	4, 5	2.10	Portland	22, 23	2.12
Dist. of Columbia.			Roseburg		9.46
Distributing Res.	4, 5	3.07	Fort Klamath		7.30
Receiv'g Reserv'y	4, 5	2.53	Pennsylvania.		
Washington City	4	2.28	Dillingersville		6.25
Florida.			Bloomington	4, 5	3.30
Sanford	24, 25	2.76	Rhode Island.		
Georgia.			Olneyville		7.40
Forayth	2, 3, 4	4.10	Providence		7.10
Atlanta	2, 3	3.76	Block Island	28	2.40
Milledgeville	4	2.45	Providence		7.04
Do	16	2.00	Providence		6.41
Athens		6.47	South Carolina.		
Indiana.			Spartanburg	2, 3, 4	3.90
Mauzy	15, 16	2.50	Pacolet	2, 3, 4	3.77
Degonia	15	2.10	Tennessee.		
Louisiana.			Griff	2, 3	3.50
Point Pleasant	1, 2	8.40	Chattanooga	2, 3	3.66
Do	7, 8	5.00	Hohenwald	2	2.62
New Orleans	15, 16	4.47	Holleton		6.71
Grand Coteau	22	2.00	Dickson	2	2.50
Morgan City	3	2.00	Lexington	2, 3	2.25
Do	15	4.00	Trenton		6.16
Ashton Plantation	14, 15	4.00	Parksville	2, 3	3.37
Liberty Hill	14	2.10	Knoxville		6.12
Maine.			Millan		6.04
Bar Harbor	30, 31	3.60	Manchester	2	2.02
Eastport	28, 29	3.02	Vermont.		
Mayfield		9.01	Brattleborough		6.47
Kent's Hill		8.06	Jackonville		6.46
Kent's Hill		7.60	Marlborough		6.41
Cornish		7.52	Townshend		6.00
Waterville		7.18	Stowe		6.00
Orono		7.00	Virginia.		
Gardiner		6.64	Dale Enterprise	8, 9	5.49
Buckfield		6.61	Do	21	2.50
Bridgeton		6.48	Do	24, 25	2.10
Maryland.			Washington Ter.		
Fallston	4	2.60	Tatoosh Island	19, 20	2.68
Woodstock	3, 4	3.01	Do	26, 27, 28	4.16
Fort McHenry	4	2.70	Pysh	22, 23	3.47
Massachusetts.			Olympia	23, 24, 25	4.00
Beverly Farms		9.30	Tacoma		9.47
Taunton		7.79	Bainbridge Isl'd.	23	2.75
			Fort Canby		6.33

TEMPERATURE OF WATER.

The following table shows the highest and lowest temperatures of water observed at the several stations; the monthly ranges of water temperature; the average depth at which the

observations were made; and the mean temperature of the air at the stations:

Temperature of water for January, 1886.

Station.	Temperature at bottom.		Range.	Average depth, feet and tenths.	Mean temperature of the air at station.
	Max.	Min.			
Atlantic City, New Jersey	40.0	28.5	11.5	6.6	29.7
Alpena, Michigan*	52.5	30.7	1.8	12.5	15.3
Augusta, Georgia	53.3	32.8	20.5	14.6	40.2
Baltimore, Maryland	39.5	32.1	7.4	10.3	29.1
Boston, Massachusetts	38.1	29.5	8.6	19.6	25.9
Buffalo, New York	37.6	32.0	5.6	10.3	22.1
Canby, Fort, Washington Territory	49.8	38.3	11.5	15.5	40.1
Cedar Keys, Florida	58.8	34.7	24.1	7.6	49.2
Charleston, South Carolina	51.6	28.5	23.1	39.1	42.8
Chicago, Illinois*	37.3	33.1	4.2	9.0	21.4
Chincoteague, Virginia*	41.8	28.4	13.4	2.7	32.7
Cleveland, Ohio*	34.3	31.9	2.4	14.0	23.1
Detroit, Michigan*	37.2	35.4	1.8	24.7	24.7
Duluth, Minnesota*	34.5	33.1	1.4	10.3	5.7
Eastport, Maine	40.9	36.3	4.6	15.9	22.9
Escanaba, Michigan*	60.6	31.0	29.6	12.2	47.3
Galveston, Texas	33.6	32.3	1.3	19.0	20.2
Grand Haven, Michigan*	63.4	33.7	29.7	7.2	46.3
Indianola, Texas	57.6	42.0	15.6	18.0	50.7
Jacksonville, Florida	70.9	60.2	10.7	17.8	63.8
Key West, Florida	33.4	31.8	1.6	10.0	15.0
Mackinaw City, Michigan*	56.2	35.0	21.2	11.1	39.7
Macon, Fort, North Carolina	34.4	32.2	2.2	12.8	13.8
Marquette, Michigan*	52.6	40.5	12.1	15.9	44.1
Milwaukee, Wisconsin*	41.0	30.6	10.4	15.6	25.4
Mobile, Alabama	38.8	32.4	6.4	12.2	27.8
New Haven, Connecticut	40.0	32.0	8.0	18.3	28.5
New London, Connecticut	44.6	31.2	13.4	15.9	34.3
Norfolk, Virginia	55.4	39.8	15.6	16.6	46.3
Pensacola, Florida	37.2	30.7	6.5	16.6	21.3
Portland, Maine	45.0	33.4	11.6	52.1	36.1
Portland, Oregon	36.6	33.4	3.2	11.2	22.7
Sandusky, Ohio*	41.0	30.9	10.1	2.2	28.8
Sandy Hook, New Jersey	54.6	49.7	4.9	38.0	50.9
San Francisco, California	51.1	34.1	17.0	9.7	45.9
Savannah, Georgia	55.1	34.9	20.2	10.5	40.0
Smithville, North Carolina	39.5	33.2	6.3	13.6	20.7
Toledo, Ohio*					
Wilmington, North Carolina					

* Observations interrupted by ice; see text.

† Observations interrupted from the 16th to the 31st.

Observations were interrupted by ice during the month, as follows:

Grand Haven, Michigan, 9th to 31st; Cleveland, Ohio, 9th to 31st; Sandusky, Ohio, 7th to 31st; Alpena, Michigan, 7th to 31st; Mackinaw City, Michigan, 6th to 31st; Marquette, Michigan, 8th to 31st; Duluth, Minnesota, 6th, 7th, 10th, 15th, 19th to 31st; Escanaba, Michigan, 1st to 31st; Detroit, Michigan, 7th to 31st; Chicago, Illinois, 7th to 31st; Milwaukee, Wisconsin, 1st to 31st; Chincoteague, Virginia, 12th to 17th; Toledo, Ohio, 8th to 31st.

WINDS.

The most frequent directions of the wind during January, 1886, are shown on chart ii by the arrows flying with the wind; they are also given in the tables of miscellaneous data. Over the eastern slope of the Rocky Mountains, in the extreme northwest, upper Mississippi and Missouri valleys, middle Atlantic and west Gulf states the prevailing winds were, in most cases, from the northwest; in the lower lake region and east Gulf states they were westerly; in New England and on the Pacific coast they were variable.

HIGH WINDS.

[In miles per hour.]

Wind-velocities of fifty or more miles per hour were recorded during the month, as follows:

Mount Washington, New Hampshire, 68, nw., 1st; 50, sw., 3d; 93, s., 4th; 72, sw., 5th; 52, s., 6th; 107, nw., 7th; 108, nw., 8th; 108 ne., 9th; 58, nw., 10th; 51, nw., 11th; 88, nw., 12th; 74, nw., 13th; 73, s., 16th; 73, nw., 17th; 96, nw., 18th; 80, se., 19th; 120, nw., 20th; 80, sw., 21st; 122, nw., 23d; 63, nw., 24th; 62, sw., 25th; 60, nw., 26th; 59, nw., 31st.

Pike's Peak, Colorado, 58, nw., 7th; 55, n., 8th; 74, nw., 9th; 80, nw., 10th; 63, nw., 11th; 50, sw., 21st; 88, w., 22d; 70, w., 23d; 70, w., 24th; 54, n., 28th; 64, nw., 29th; 70, nw., 30th.

Cape Mendocino, California, 68, se., 12th; 144, se., 20th; 72, se., 21st; 108, se., 22d; 86, se., 23d; 88, se., 26th.

Sandy Hook, New Jersey, 53, nw., 6th; 50, nw., 7th; 50, e., 8th; 66, ne., 9th; 53, nw., 23d.

Fort Elliott, Texas, 58, nw., 7th; 52, nw., 28th; 59, n., 22d.

Indianola, Texas, 53, n., 3d; 56, n., 7th; 60, n., 8th.

Fort Maginnis, Montana, 50, n., 14th; 62, sw., 9th.

Fort Macon, North Carolina, 53, sw., 8th; 62, sw., 9th.

Valentine, Nebraska, 54, nw., 6th; 66, nw., 7th.

Tatoosh Island, Washington Territory, 50, e., 18th; 54, e., 19th.

Fort Canby, Washington Territory, 60, se., 22d; 68, sw., 24th.

Atlantic City, New Jersey, 53, e., 8th; 52, e., 9th.

Eastport, Maine, 60, ne., 9th.

Sandusky, Ohio, 50, nw., 9th.

Rochester, New York, 60, w., 22d.

Red Bluff, California, 50, se., 20th.

Cheyenne, Wyoming, 52, nw., 21st.

Boston, Massachusetts, 64, ne., 9th.

Cape Henry, Virginia, 60, ne., 8th.

Block Island, Rhode Island, 64, ne., 9th.

LOCAL STORMS.

California.—San Francisco: an unusually severe storm occurred on the 20th, the wind reaching a velocity of forty-two miles per hour, blowing down trees, awnings, telegraph and telephone lines; in the western portion of the city several buildings were blown down, and a number of persons severely injured; in the business portion of the city signs, awnings, etc., were carried away and windows broken by the strong wind; the shipping in the harbor sustained but little damage, owing to the ample warning given.

Grass Valley, Nevada county: a heavy wind and rain storm occurred on the 20th; signs, fences, and telegraph lines were prostrated.

Half Moon Bay, San Mateo county: a heavy rain, and the severest wind storm within the past twenty-five years, occurred on the 20th; fences, buildings, and telegraph lines were blown down, and great damage done.

Chico, Butte county: the heaviest wind and rain storm for years occurred on the 20th, doing considerable damage to property.

Marysville, Yuba county: a terrific southeast gale and heavy rain storm occurred on the 20th, doing considerable damage about the city and in the surrounding country, hundreds of trees were uprooted, fences and telegraph lines blown down.

Rocklin, Placer county: the severe storm of the 20th blew down fences, trees, wind-mills, etc.

Sacramento: the heaviest wind storm in the past eight years occurred on the 20th; considerable damage was done in the city; fences, gates, small buildings, etc., were blown down, houses unroofed, trees and shrubbery destroyed or seriously injured.

Hydesville, Humboldt county: the heaviest wind storm for years occurred on the 20th; fences were scattered in every direction.

NAVIGATION.

STAGE OF WATER IN RIVERS.

The Mississippi River was frozen for the entire month at Saint Paul, Minnesota; from the 5th to 31st at La Crosse, Wisconsin; and from the 1st to 31st at Dubuque, Iowa. On the 28th a solid mass of ice blockaded the river from the mouth of the Illinois River as far south as Ste. Genevieve, Missouri, a distance of sixty-five miles; the ice was sixteen inches thick, and resembled in many respects the ice gorge which blockaded the river in 1875.

The Missouri River was frozen throughout the month at all stations, except at Leavenworth, Kansas, at which place it froze on the 4th.

The Arkansas River, at Fort Smith, was frozen from the 9th to 31st, and at Little Rock from the 9th to 26th.